

64 MSCT DIAGNOSTIC



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Cardiosurgery - Skopje



64 MSCT

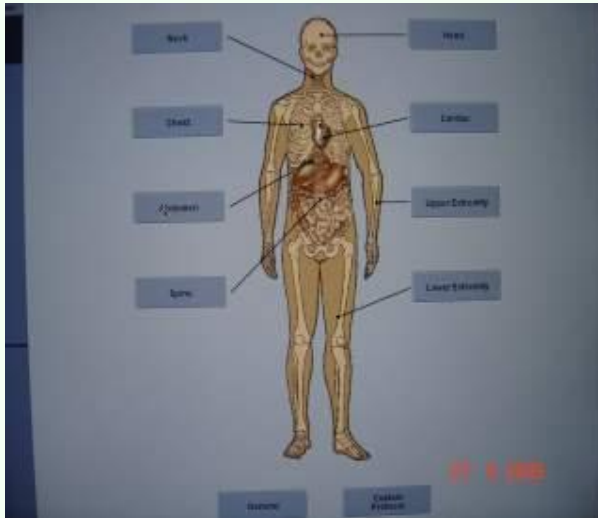
Light Speed VCT



- 64 rows of detectors 0.625 mm
- fast scanning
- reduction of respiratory artifacts
- continually transport of the patient through the gantry
- helical form of the X-ray beam
- continually summation of the primary data of the entire region of interests
- no gaps
- better spatial & temporal resolution
- fast primary reconstruction
- fast secondary reconstruction
- data post processing from 2D to 3D (axial, sagittal, coronal)
- MPR (multiplanar) retrospective reconstruction (different width)
- endoluminal exploration
- color visualization



Software applications



- **REFORMAT** – 3D (axial, sagittal, coronal)
- **MPR** – multiplanar reconstruction
- **CINE MODE** – movie likely analysis
- **COMPARE** – comparing of two examinations
- **LUNG VCAR** – analysis of pulmonary nodular lesions
- **VR** – visualization of tissues with different densities with different colors
- **AUTOBONE** – automatically removing of the skeleton
- **AUTO DISSECTION** – endoluminal exploration



64 MSCT Angiography

- Cerebral angiography
- Carotid & vertebral angiography
- CT of the Aorta (Aortography)
- Periphery arteriography
(upper & lower extremities)
- CARDIAC CT
& CT CORONARY ANGIOGRAPHY



64 MSCT Angiography

Indications:

- Vascular anomalies
- Trauma-rupture, stenosis, occlusion
- Pathological vascularisation of the tumors
- Aneurysmatical disease and dissection of the aorta
- Aneurysmatical disease of intracranial vessels
- Planning - interventions, stenting or vascular surgery
- Postinterventional follow up (grafts, stents)



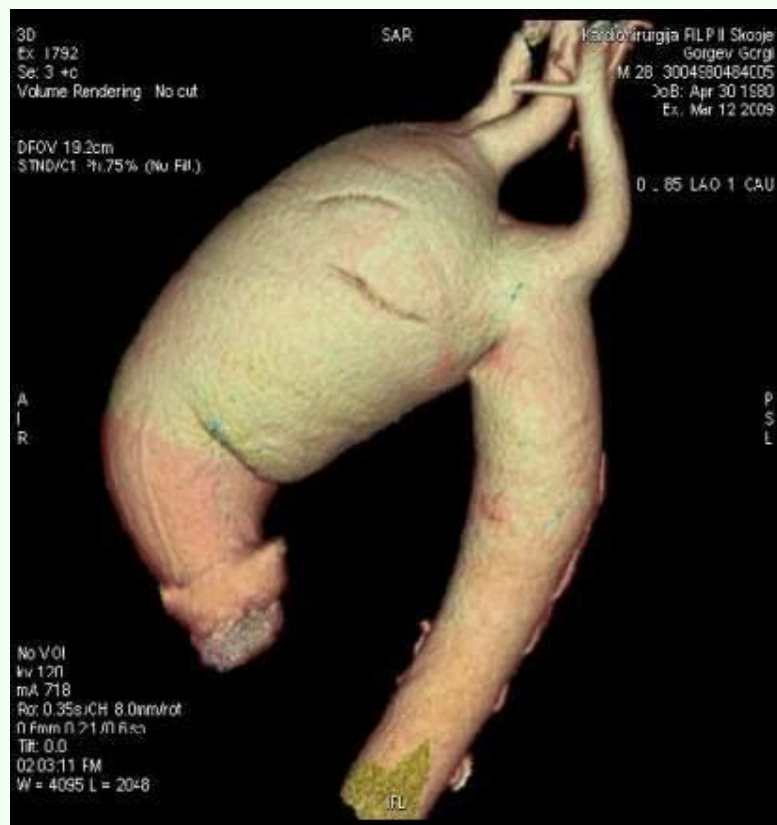
64 MSCT Angiography - aorta



64 MSCT Angiography

- aortic ascendens aneurysm

Pre-

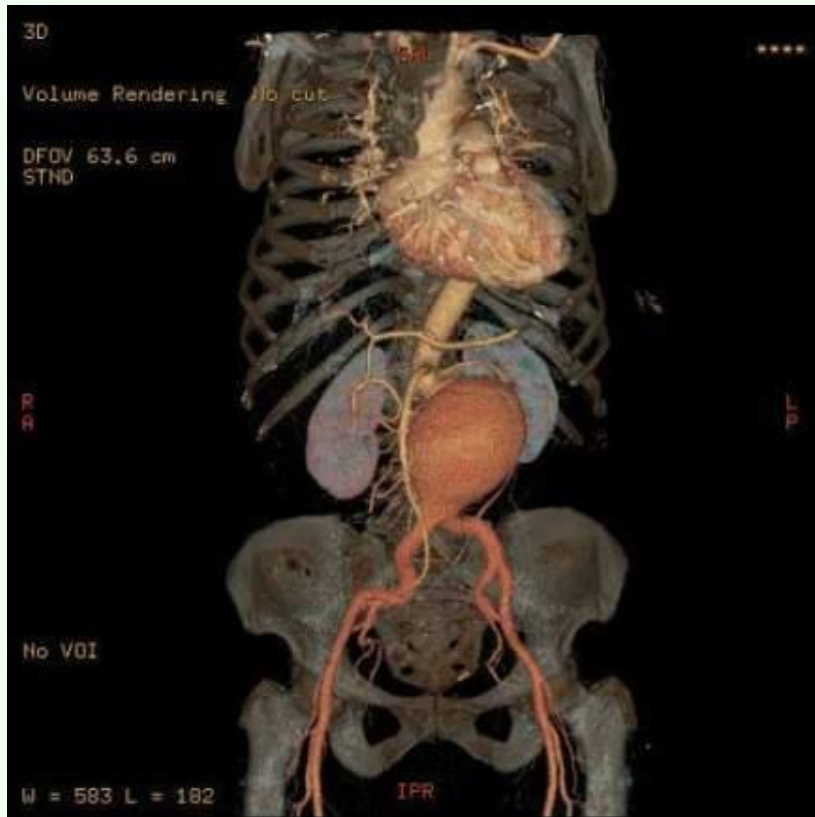


Post-

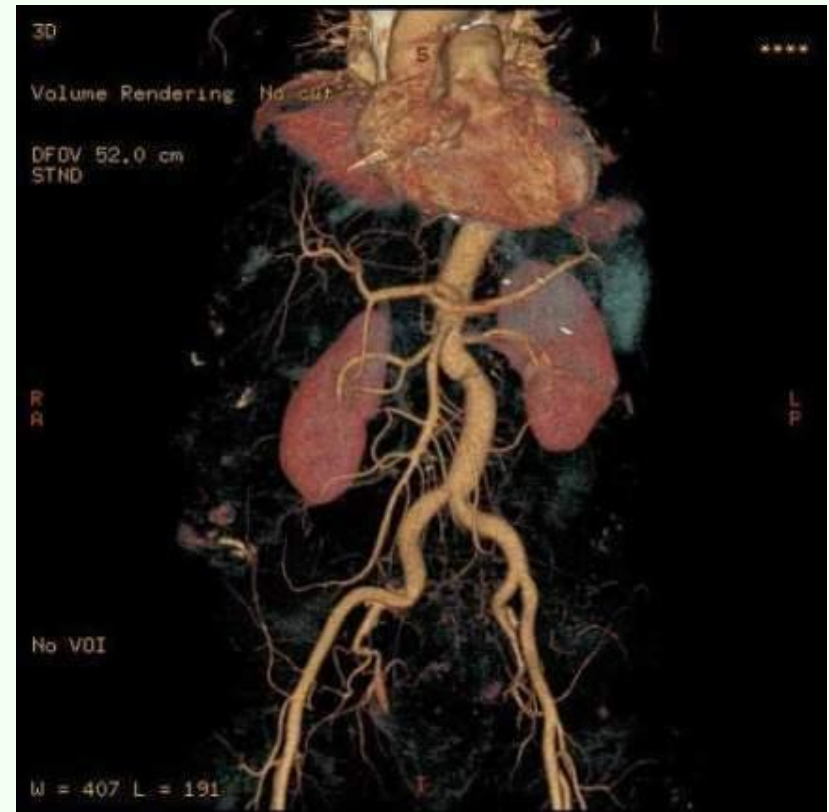


64 MSCT Angiography – infrarenal aortic aneurysm

Pre-



Post-



64 MSCT Angiography

- toracoabdominal aneurysm

Pre-



Post-

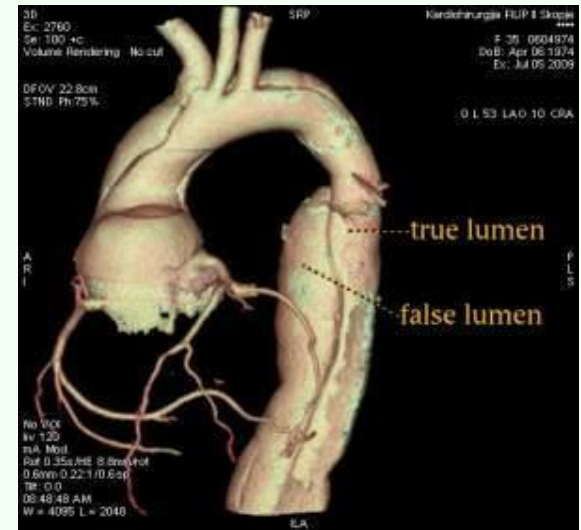
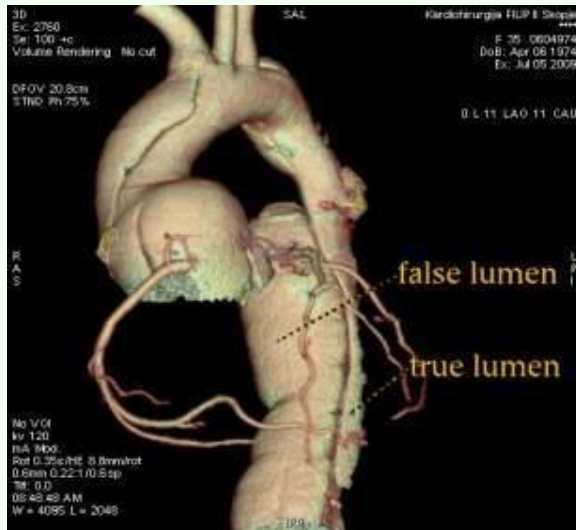


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64 MSCT Angiography

- dissection Stanford A



64 MSCT Angiography - congenital malformations

Scimitar Sy



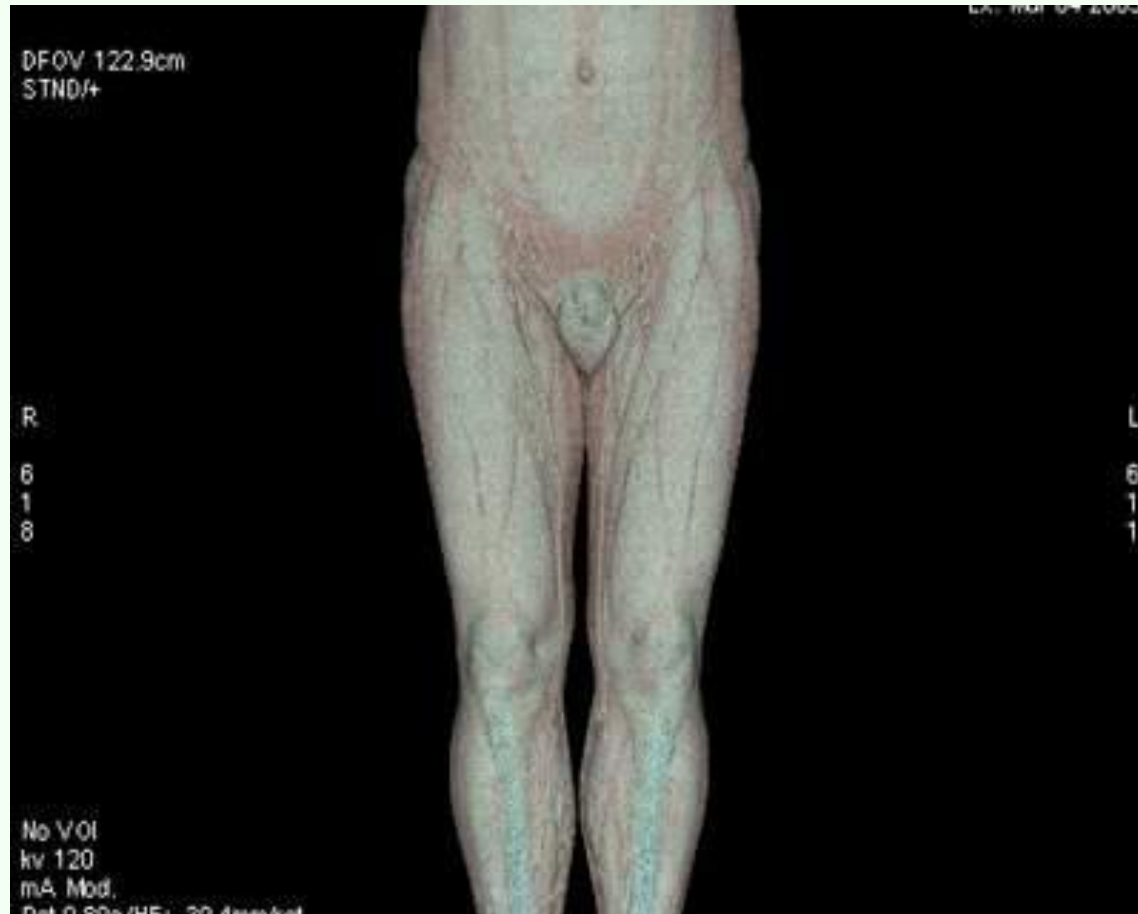
A.lusoria



Coarctatio aortae

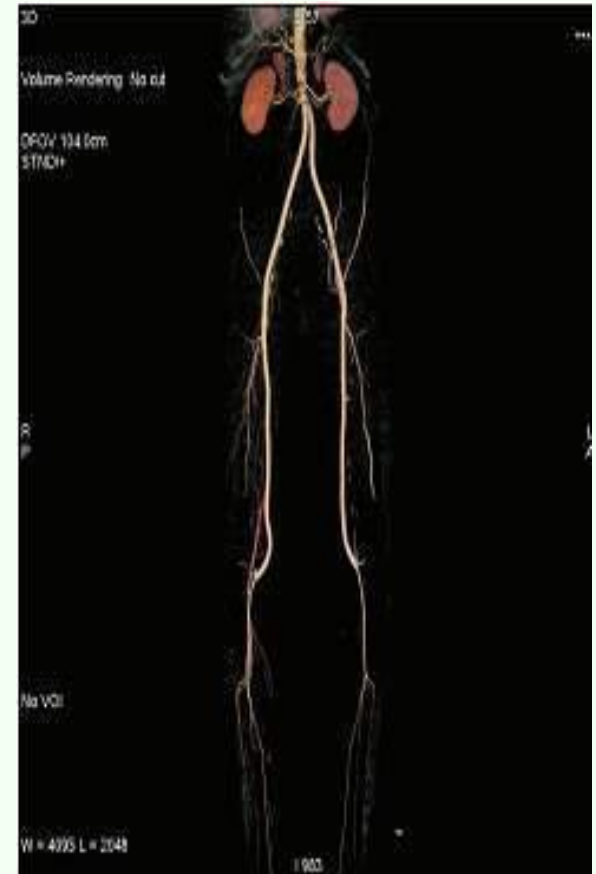


64 MSCT Angiography – periphery arteriography



64 MSCT Angiography

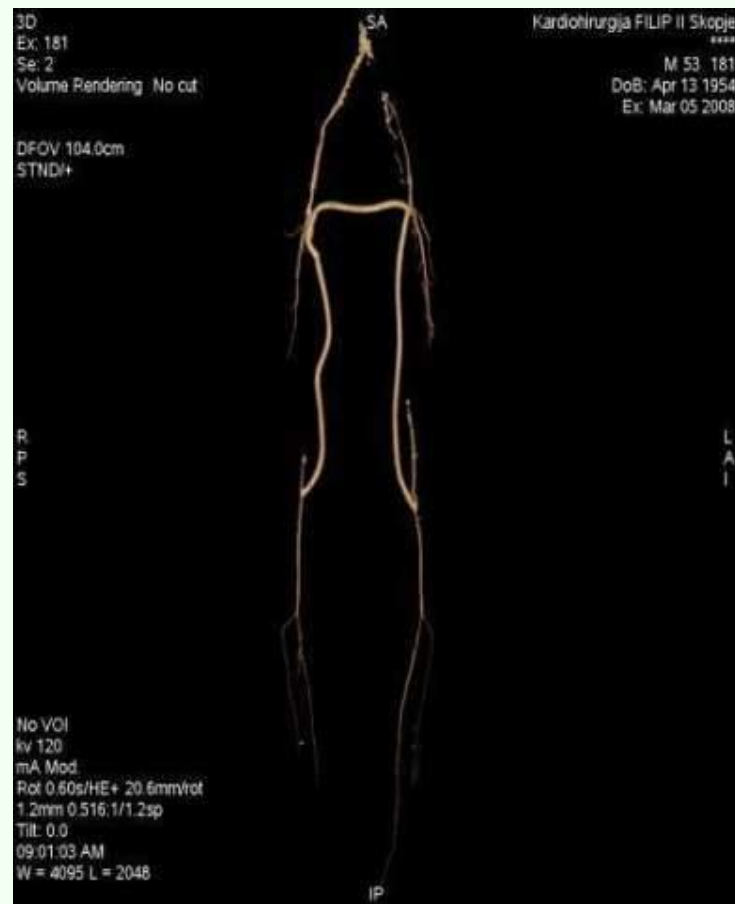
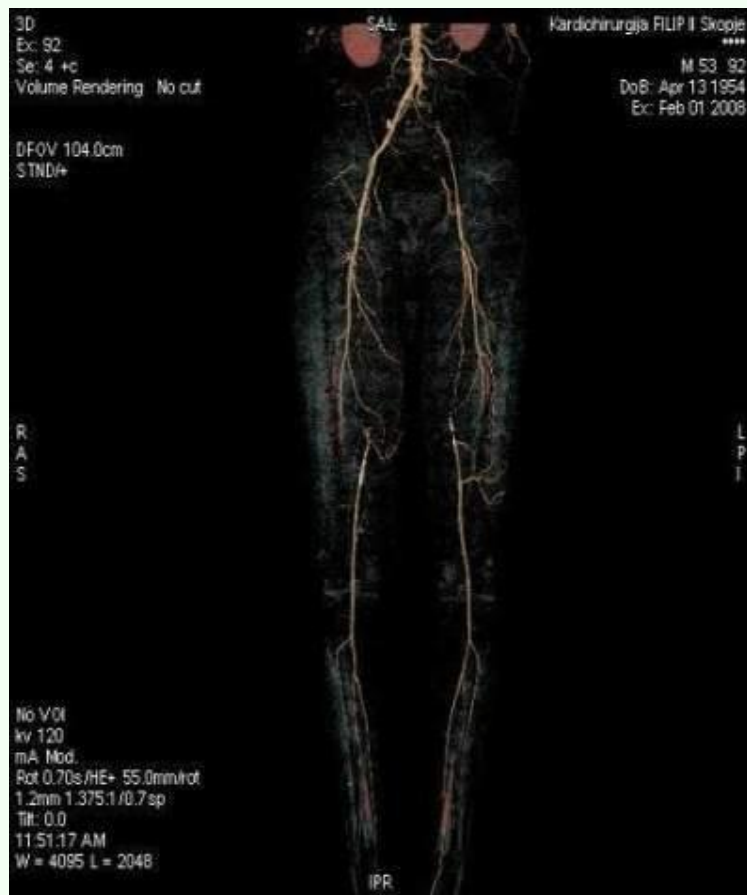
- Sy Leriche



64 MSCT Angiography – PAOD

Pre-

Post-



Cardiosurgery - Skopje



64 MSCT angiography and musculoskeletal system

- Trauma
- Degenerative diseases
- Inflammatory diseases
- Skeletal or soft tissue tumors



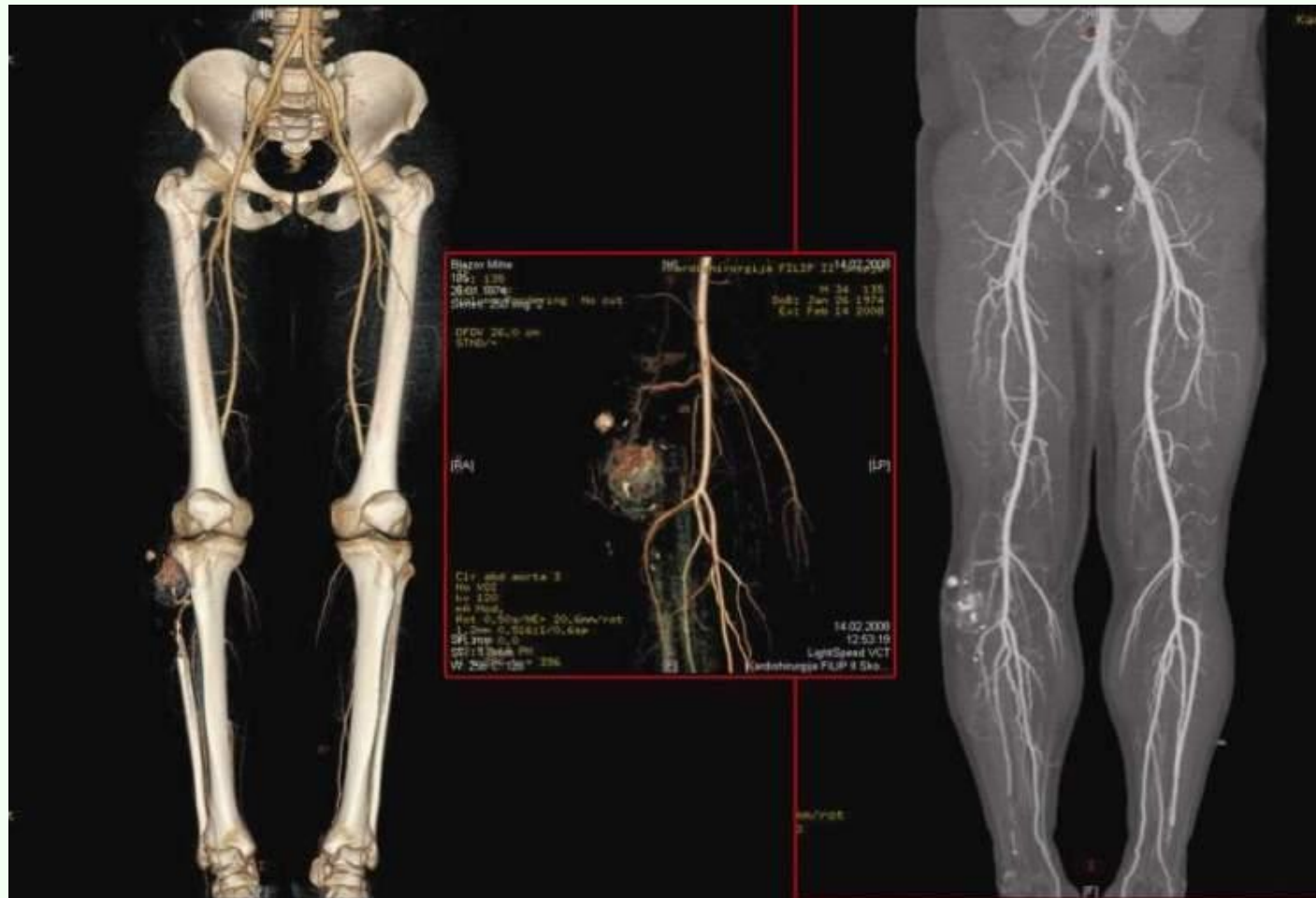
Trauma



- Fracture of Th-7 and protrusion of the vertebral body in the spinal channel



Paraosseal osteosarcoma



Pathologic vascularization
Relation of tumor with the bone
Affection of the bone
Soft tissue spreading



64 MSCT of musculoskeletal system

- Anatomical presentation of tendinous and ligament junction

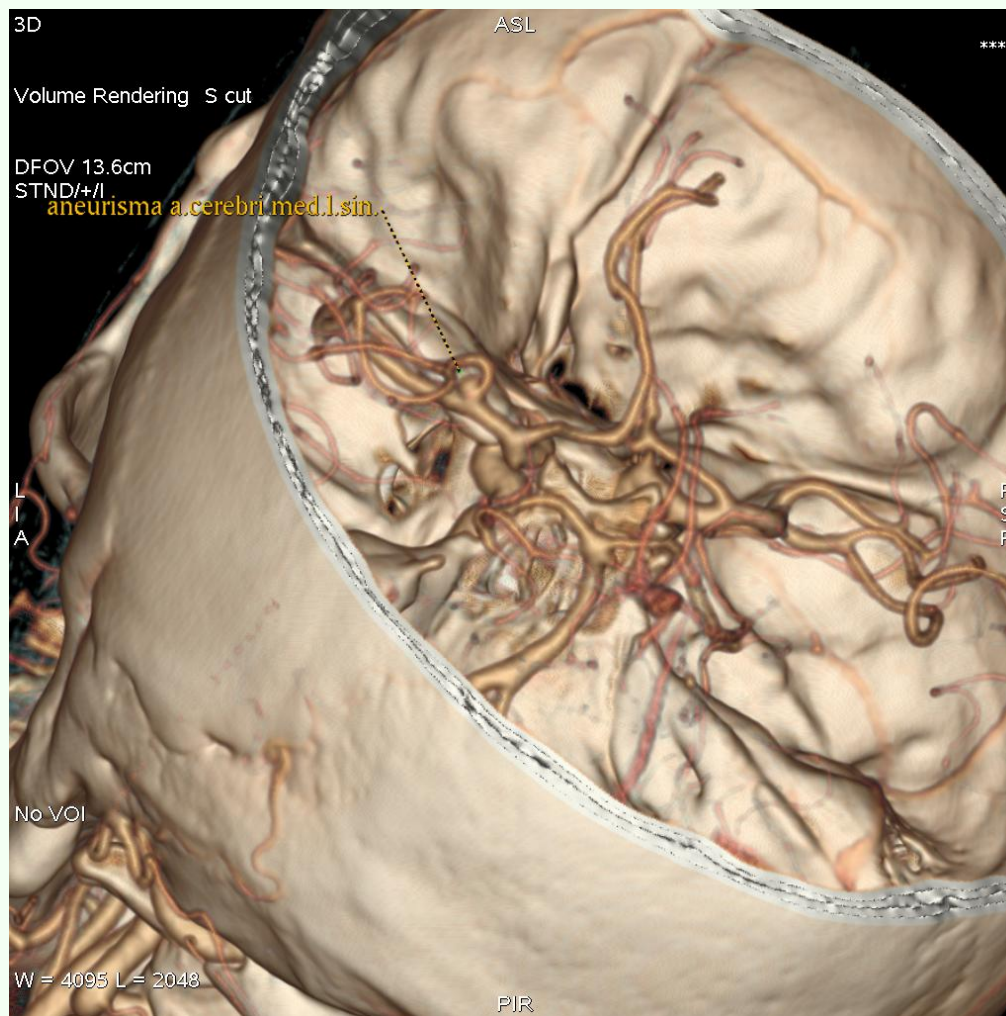


64 MSCT Angiography

- cerebral & carotid angiography

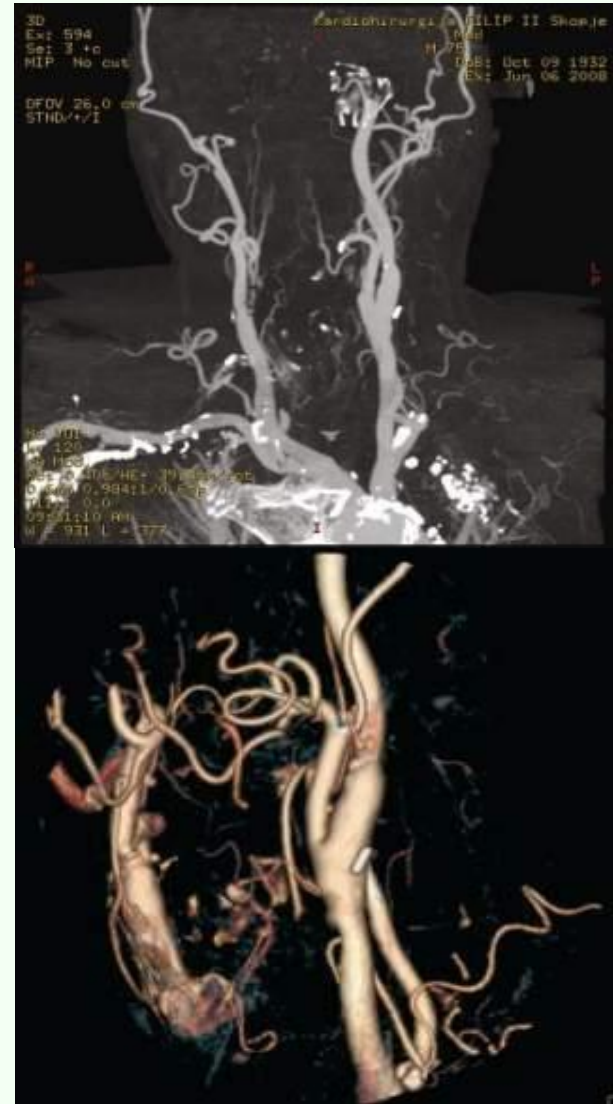
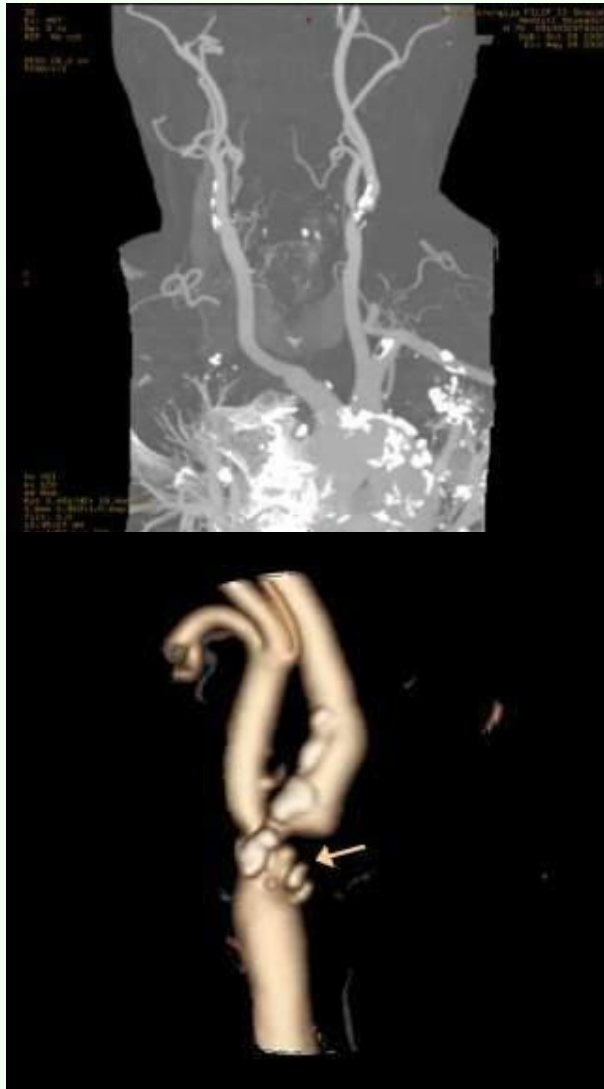


64 MSCT Angiography - cerebral angiography



64 MSCT Angiography

- carotid arteries subocclusion



64 MSCT Angiography

- a.subclavia l.sin. occlusion

Pre-

Post-

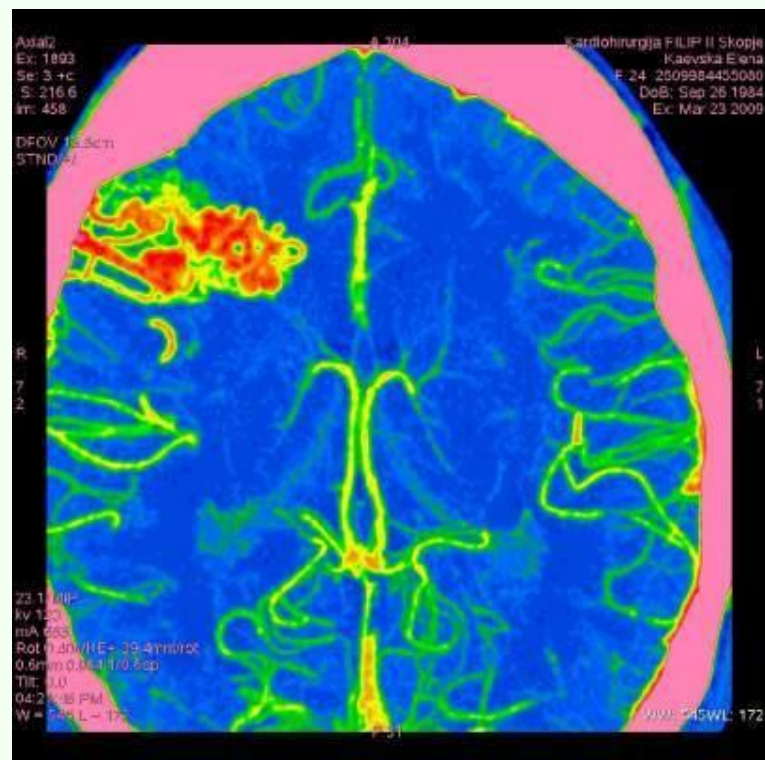
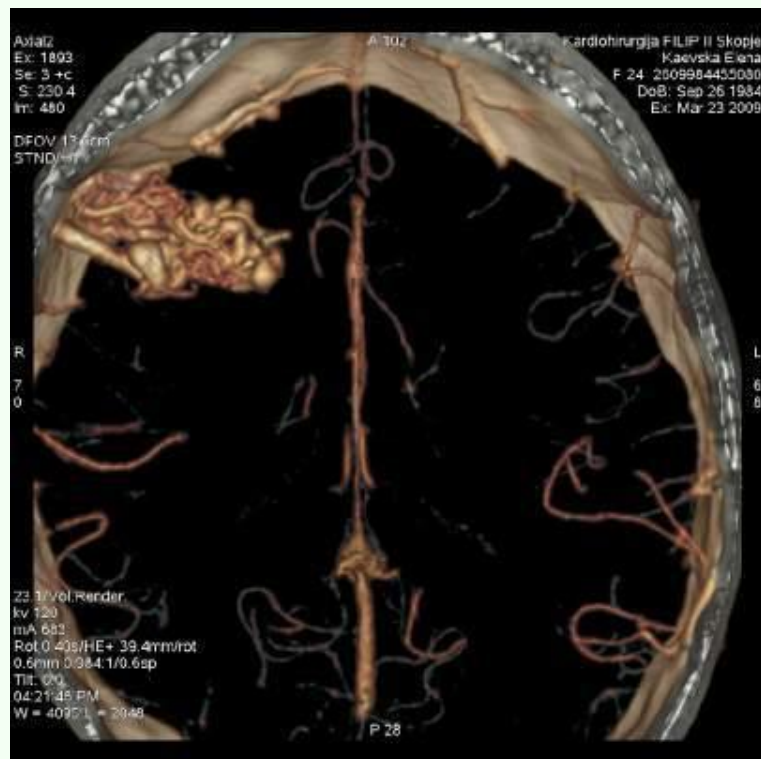


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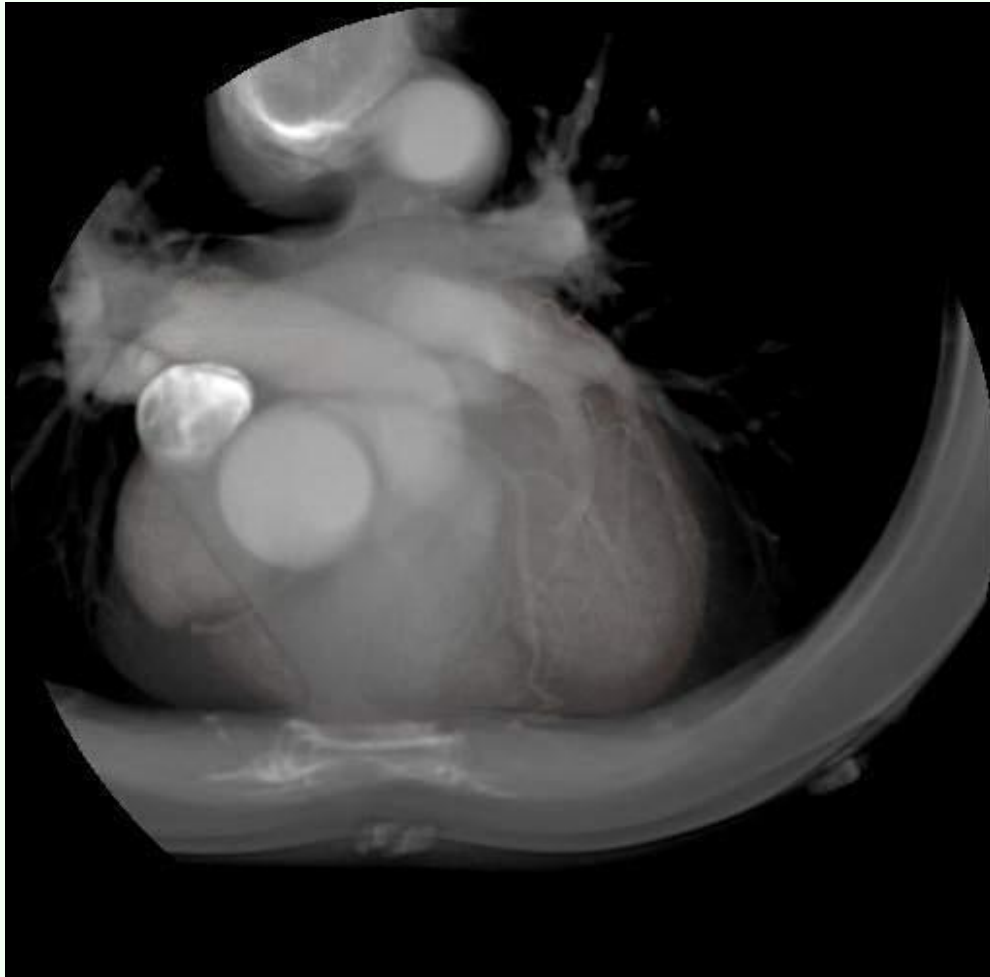


64 MSCT Angiography - congenital malformations

AV malformation of the brain



64 MS Cardiac CT



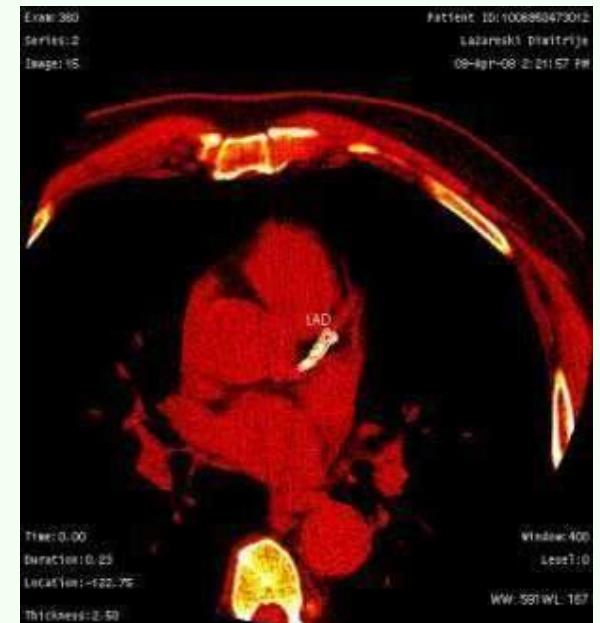
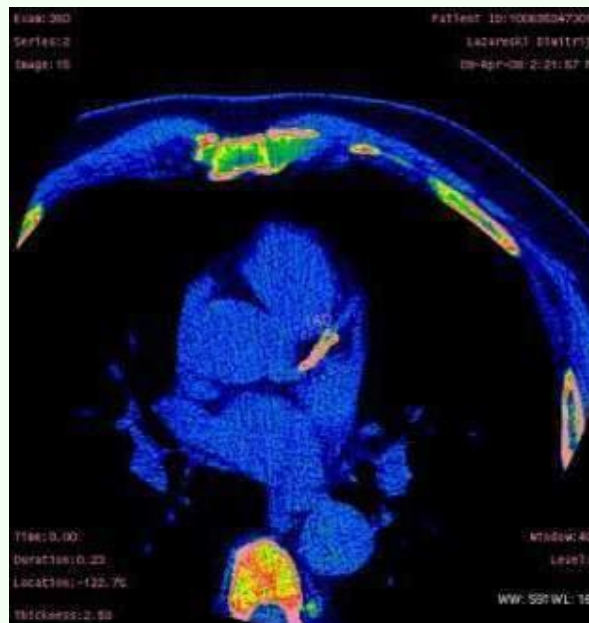
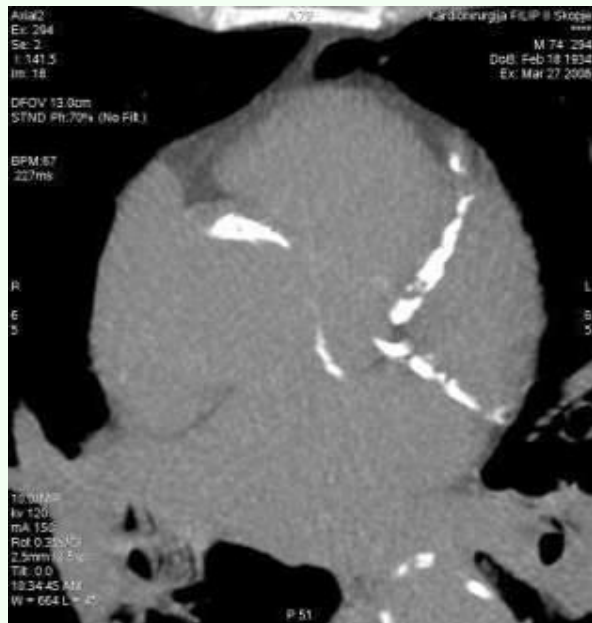
64 MS CARDIAC CT

- Indications

- Detection of CAD for a patient with atypical chest pain/angina
- Evaluation of suspected coronary anomalies before/after cath lab
- Coronary assessment before cardiac & vascular surgery
- Triple Rule Out (aortic dissection, PE, CAD)
- Stent & CABG follow-up



Ca scoring screening test



**RCA
& PDA**

LAD

LMB3

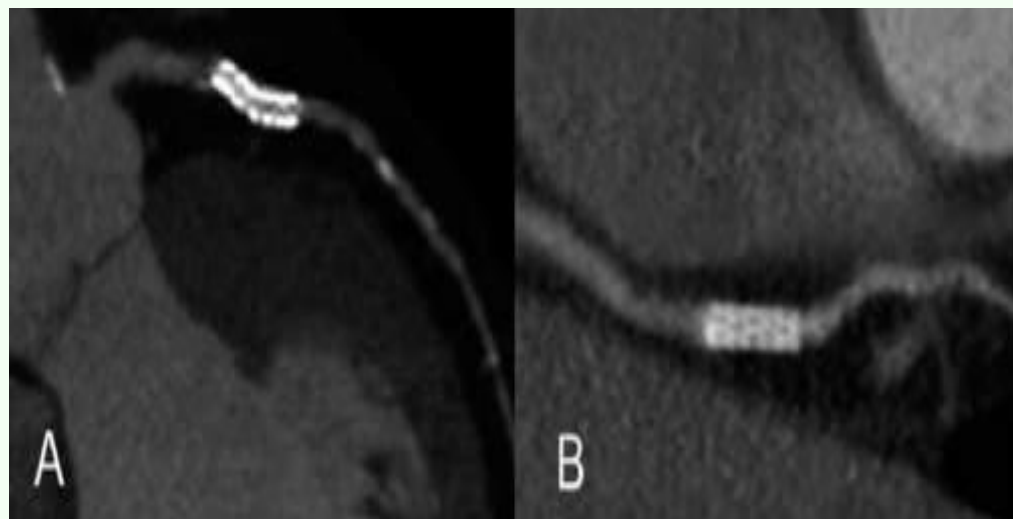
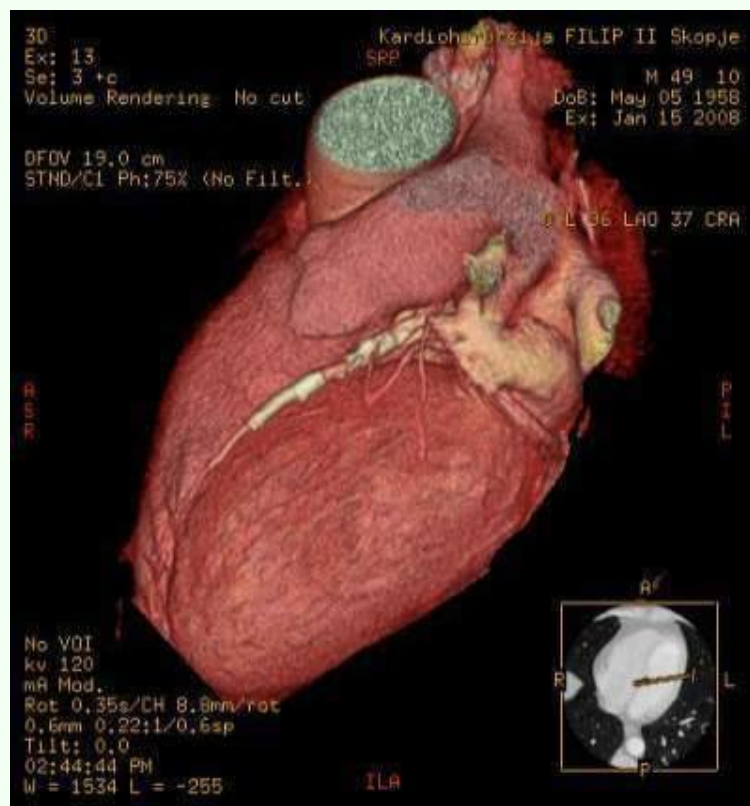


Distal PLB occlusion +Infero basal aneurysm



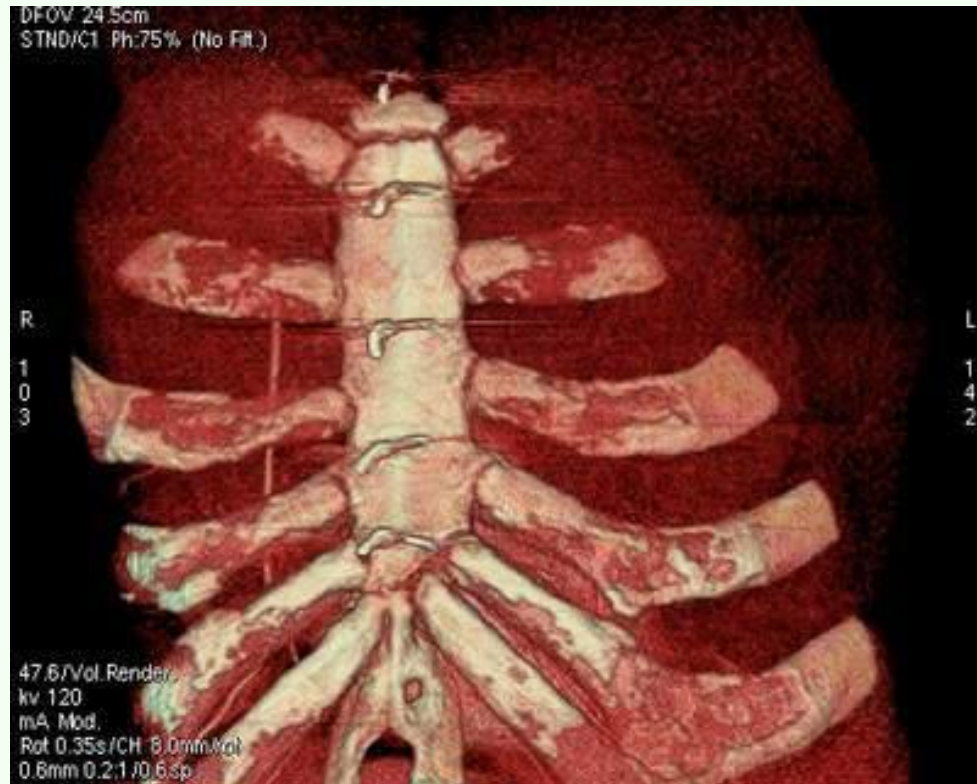
64 MSCT Angiography

- patency of the stents



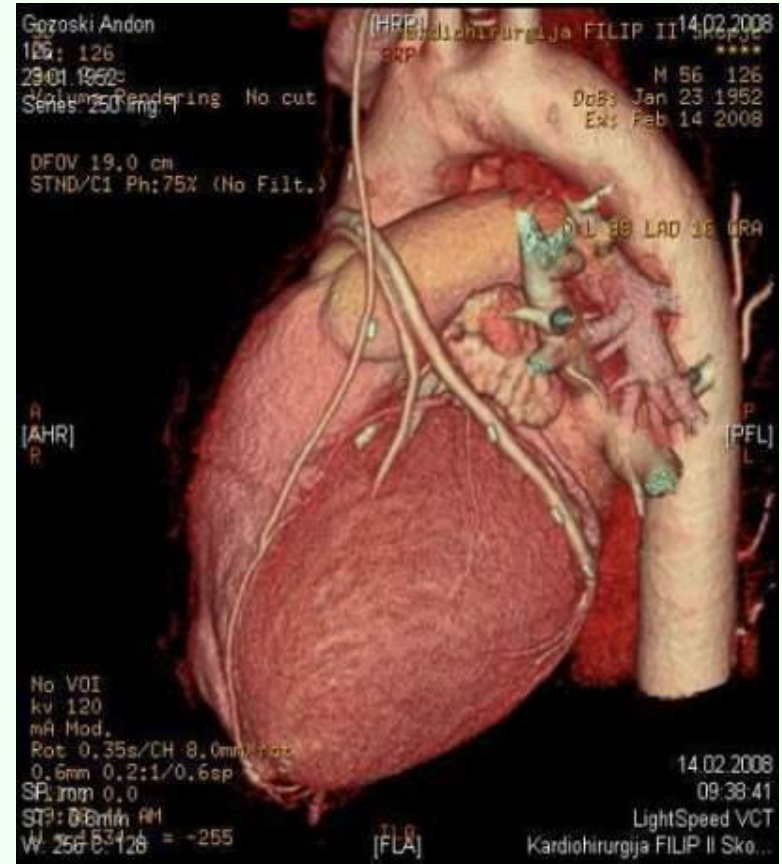
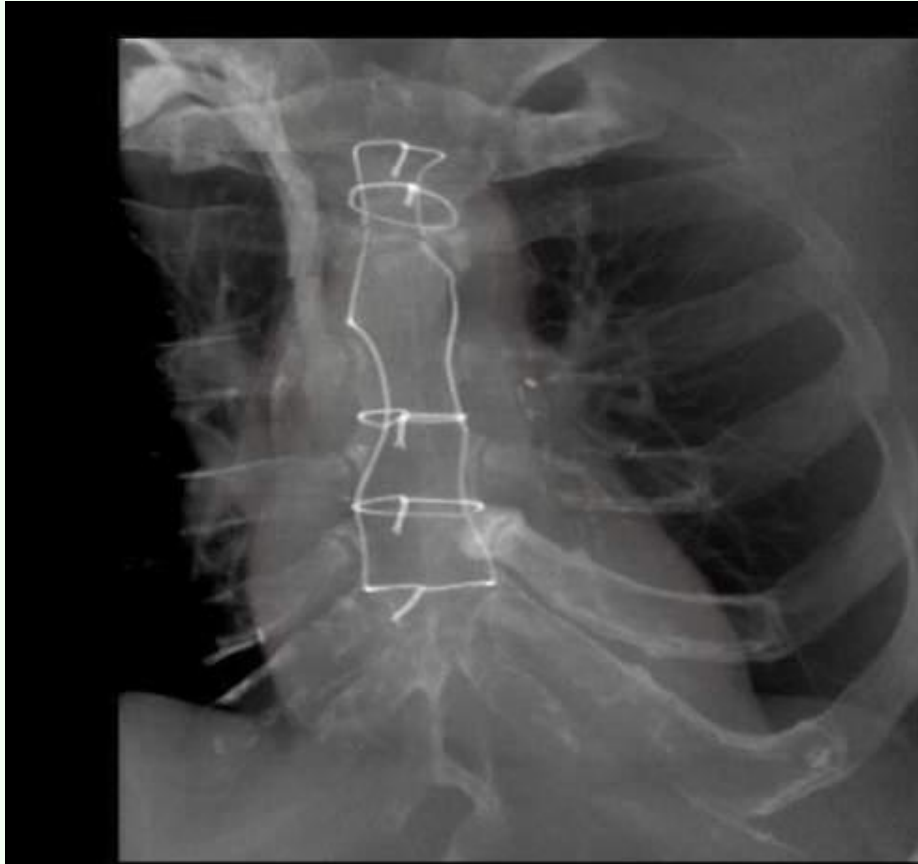
64 MSCT Angiography

- CABG follow up



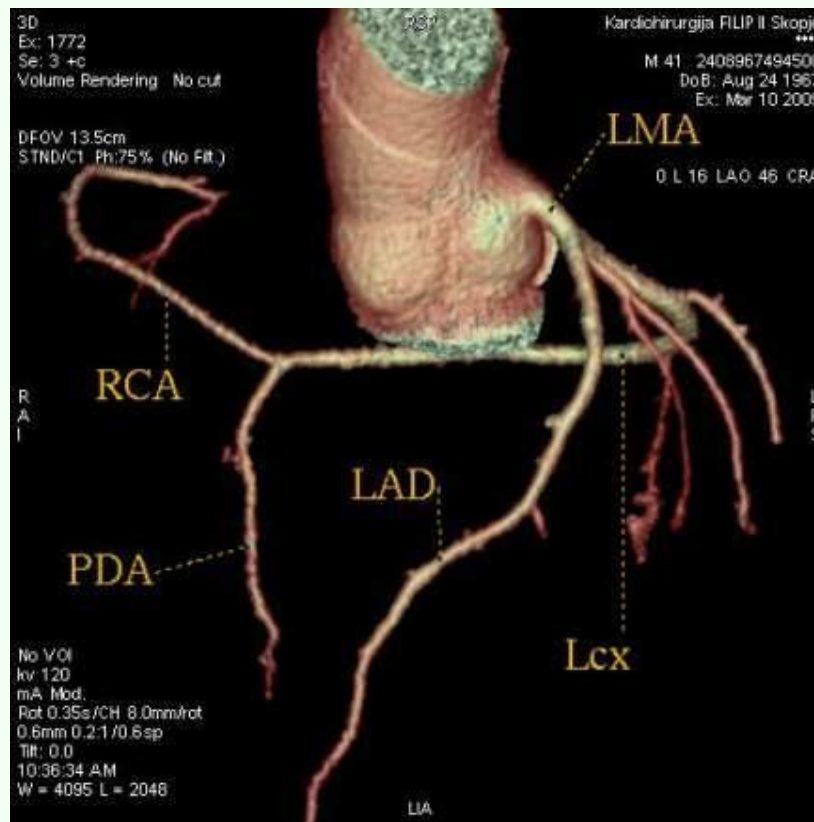
64 MSCT Angiography

- CABG follow up



64 MSCT Angiography - congenital malformations

Right coronary ostium agenesis



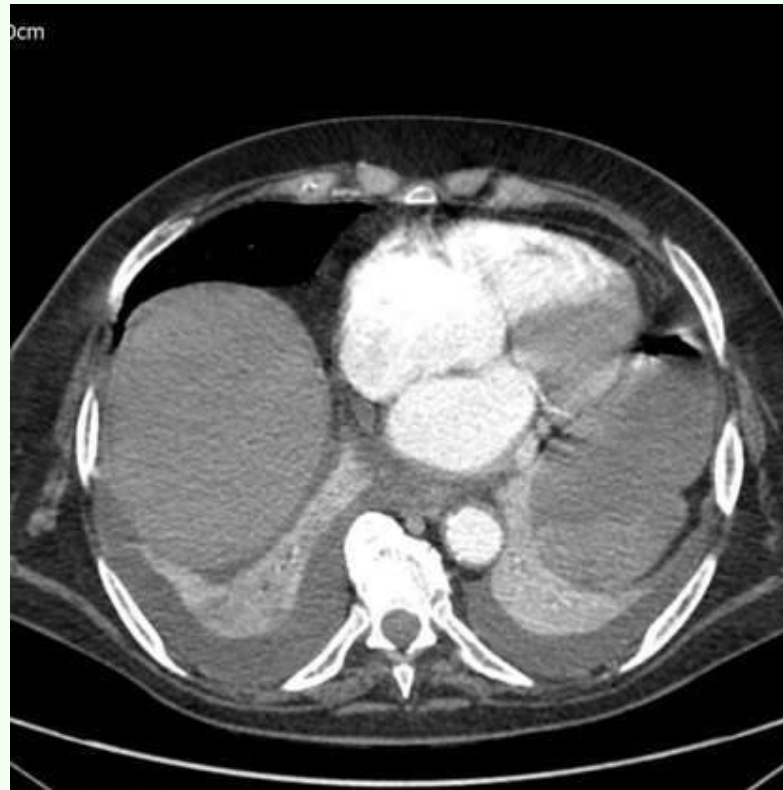
64 MSCT of the Thorax

Indications:

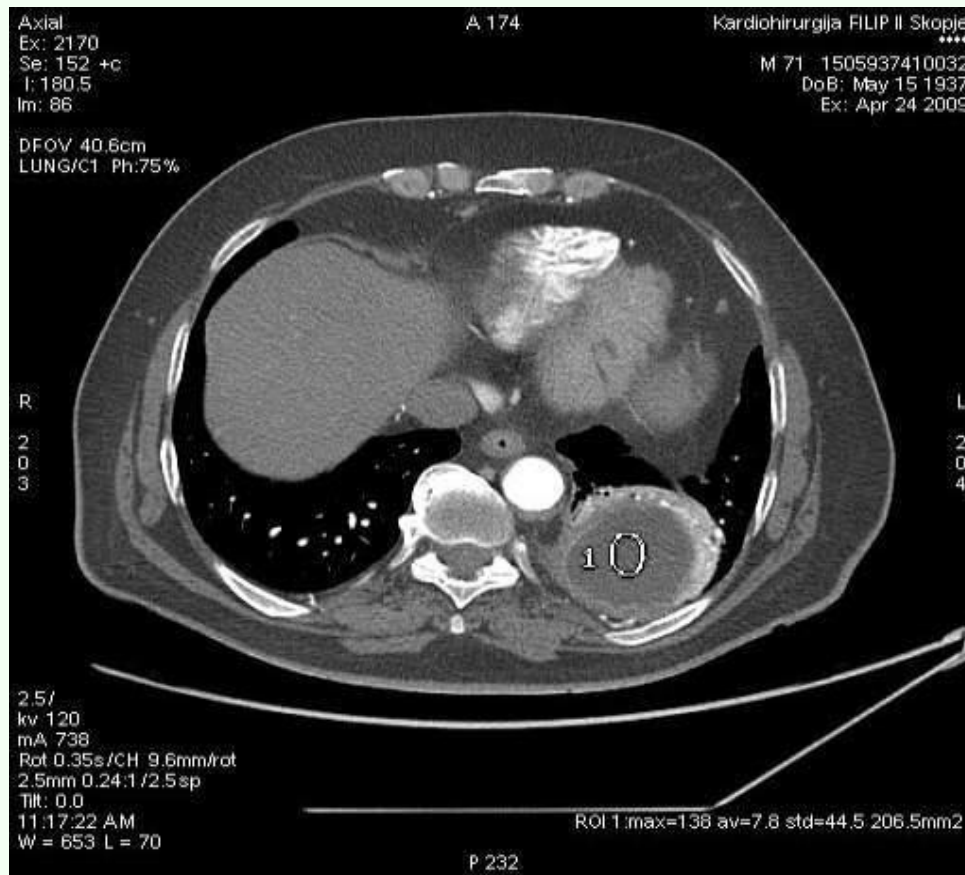
- different congenital conditions
 - vascular ring, Scimitar Sy, pulmonary sequestration
- benign & malignant lesions of the lungs
 - Ca pulmonum – staging
- pulmonary consolidation, inflammation, atelectasis
- pleural exudation
- interstitial diseases of the lungs
 - no need of HRCT (1-2 mm collimation)
- emphysema
- bronchiectasiae
- tracheobronchomalacia
- “Air trapping”
- pulmonary thromboembolism



Bilateral basal pleural exudation with concomitant compressive atelectasis



Abscessus pulmonum l.sin.



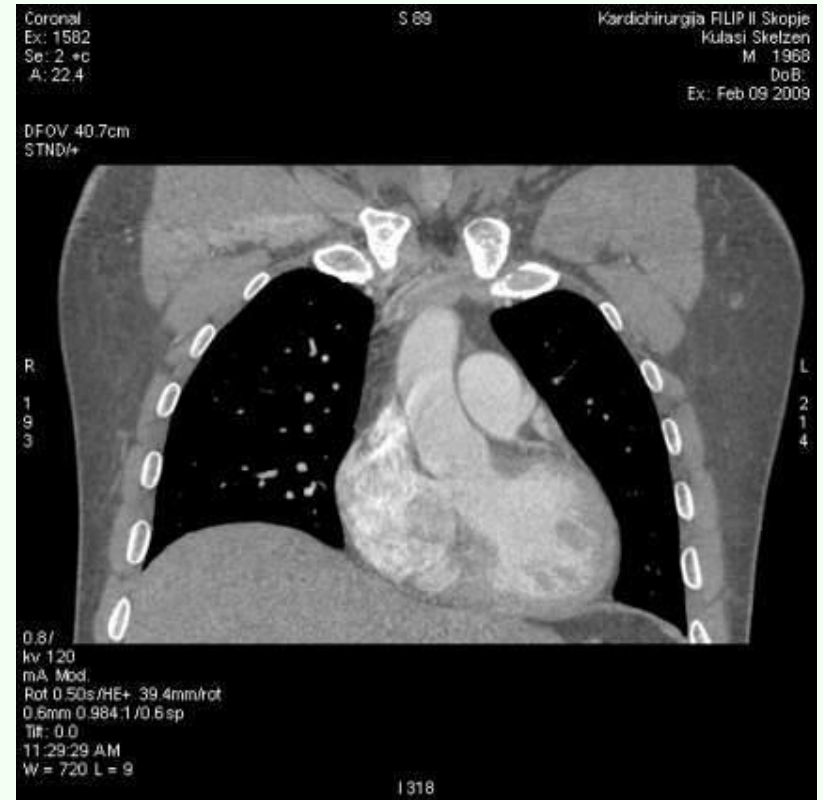
Bronchiectasiae lobi med. pulm.l.dex.



Stenosis tracheae



Pulmonary embolism

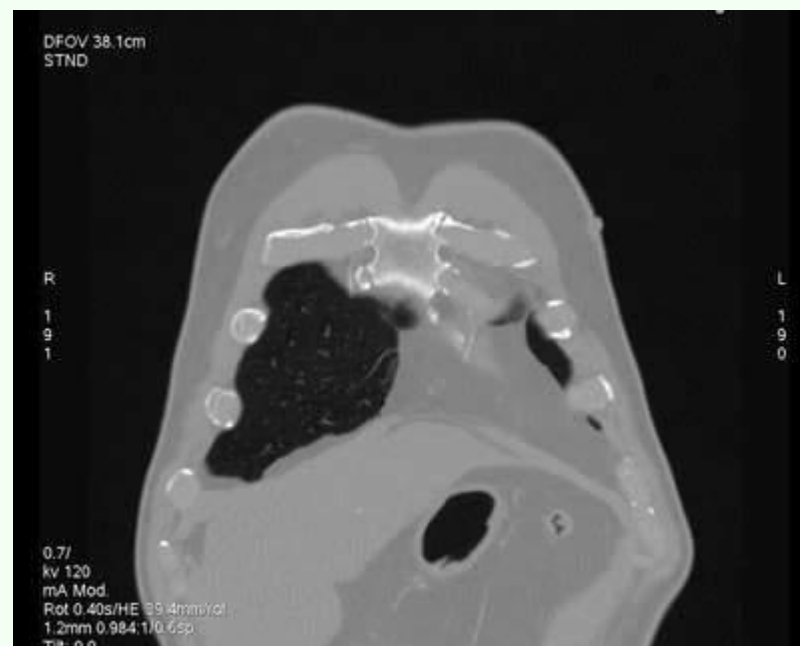


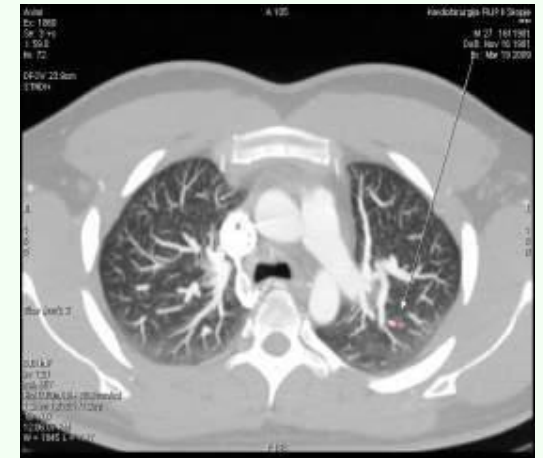
Ca bronchi lobi sup.l.sin.

axial

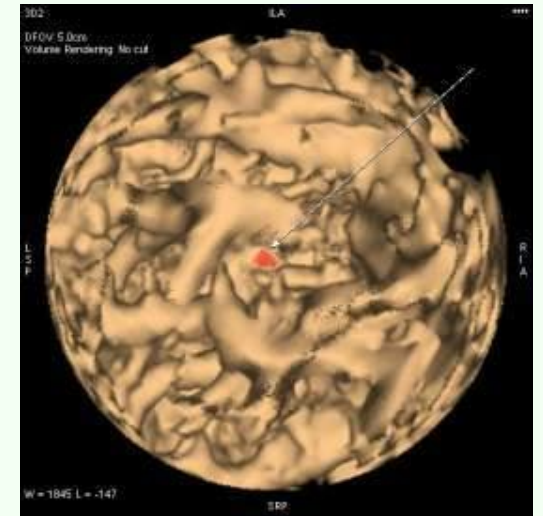
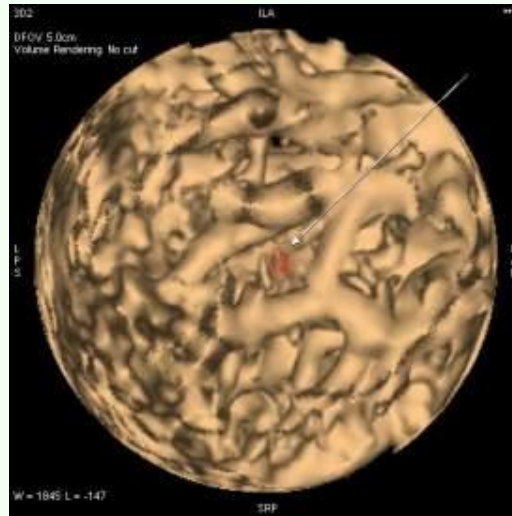
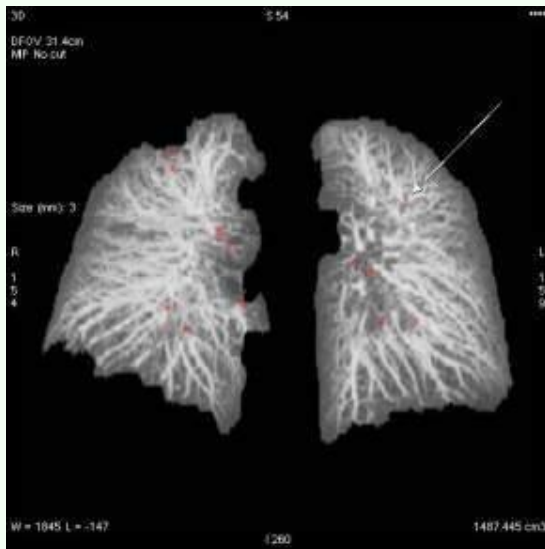


coronal





LUNG VCAR



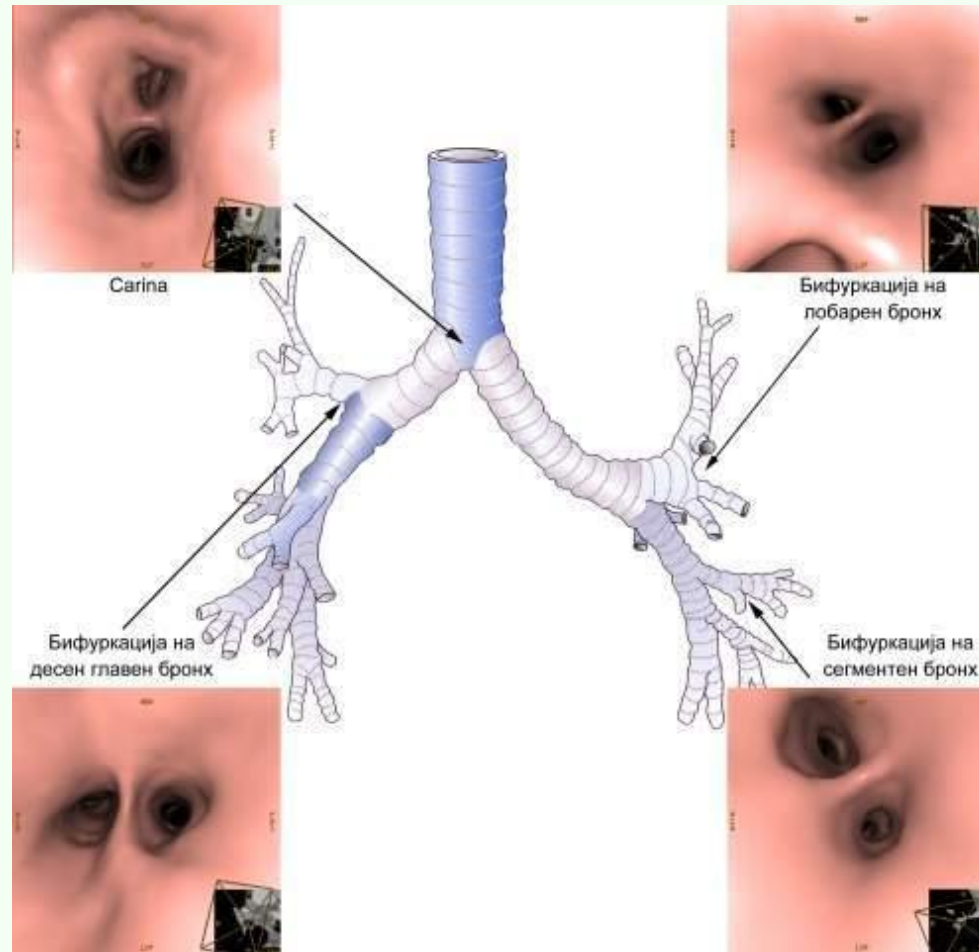
Nodular lesion



False nodular lesion



Virtual bronchoscopy



Indications for virtual bronchoscopy

- endoluminal & extraluminal lesions
- bronchogenic carcinoma
- benign & malignant bronchial stenosis
- anatomical variants (tracheal bronchus)
- congenital & acquired tracheobronchial diverticula's
- tracheobronchomalatio
- tracheo-esophageal fistulas
- vascular ring
- foreign body aspiration (organic – normal conventional radiography)
- guide for a transbronchial mediastinal or hilar lymph node biopsy



Polypus tracheae



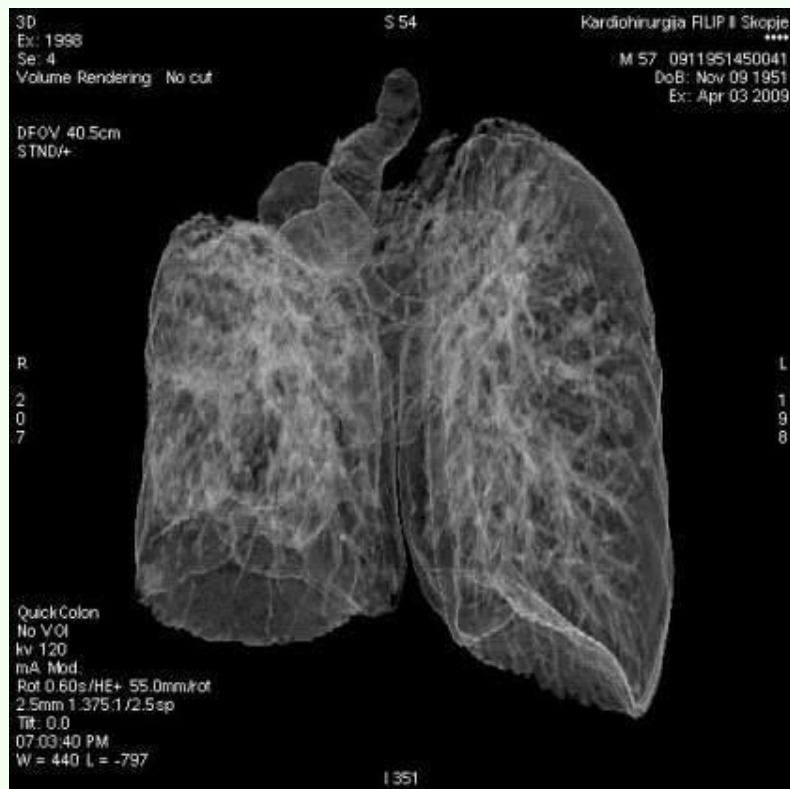
Ca bronchus principalis I.dex.



Ca bronchi lobi sup.l.sin.



Tracheobronchomalatio

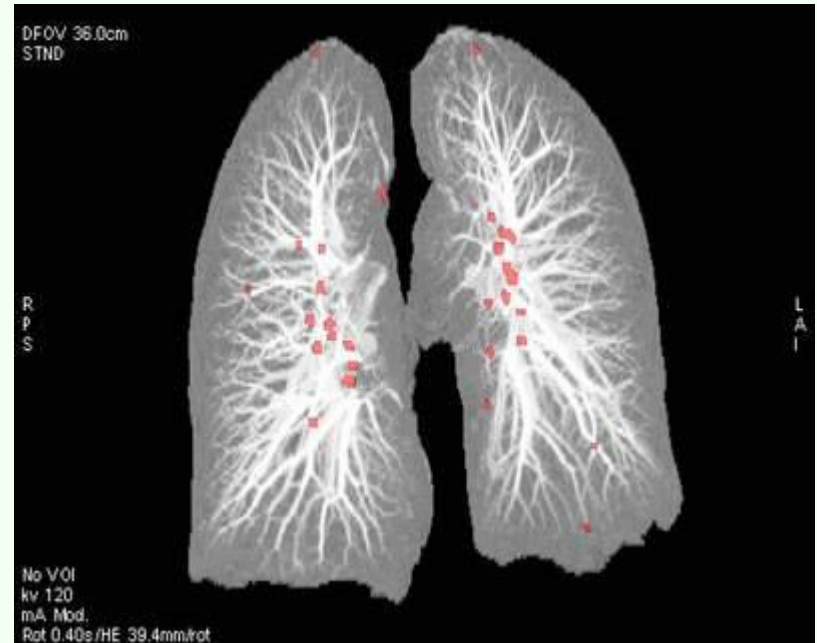


Virtual bronchoscopy

Conclusion

(+)

- fast, non-invasive, comfortable
- big diagnostic value
- preoperative planning and postoperative follow-up
- reduction of invasive fiber optical bronchoscopy



(-)

- impossible biopsy
- > radiation dose
- time consuming process



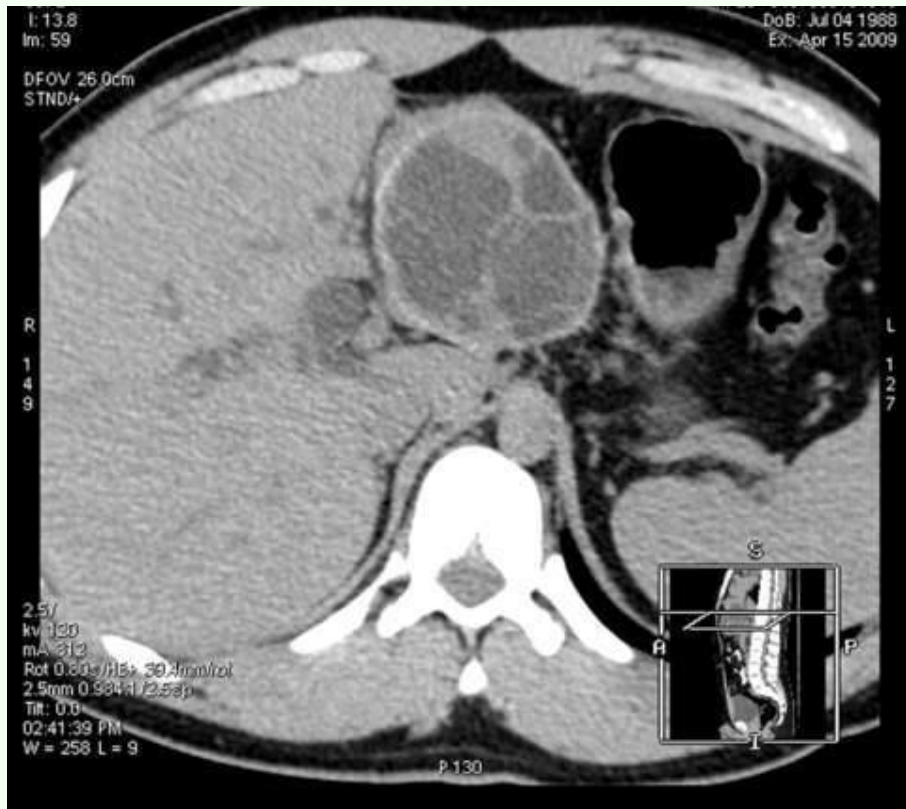
64 MSCT of the abdomen

Indications:

- Different congenital, neoplastic, inflammatory & vascular diseases of:
 - hepatobiliary tract
 - pancreas & spleen
 - gastro-intestinal tract
 - genital-urinary tract
 - lymphomas



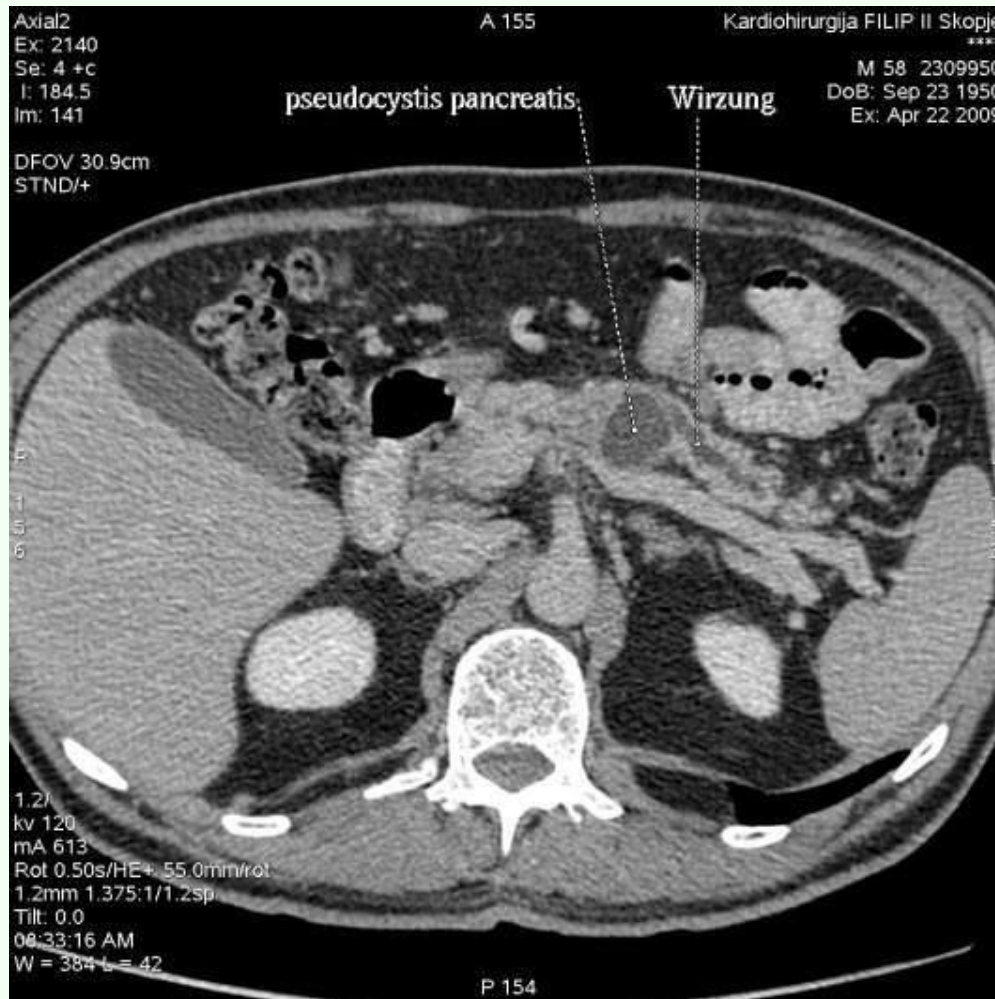
Echinococcus lohi sin. hepatis



Thrombosis v.portae



Pancreatitis chr.



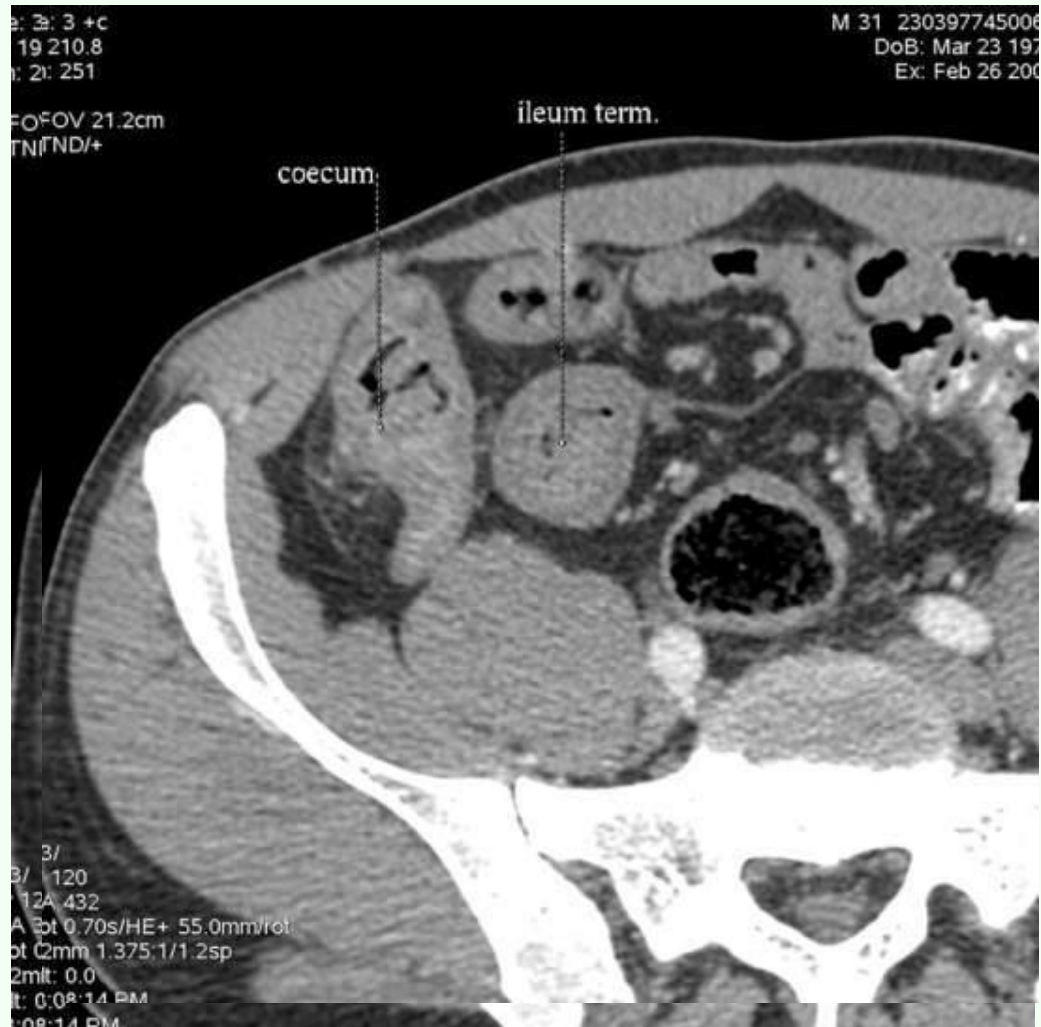
Ca sigmae

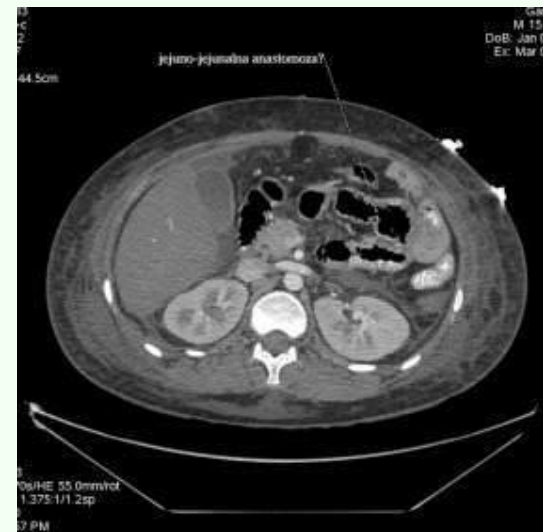
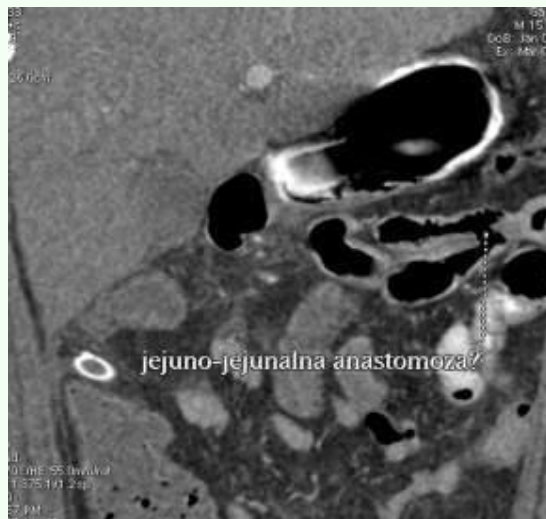


Cardiosurgery - Skopje

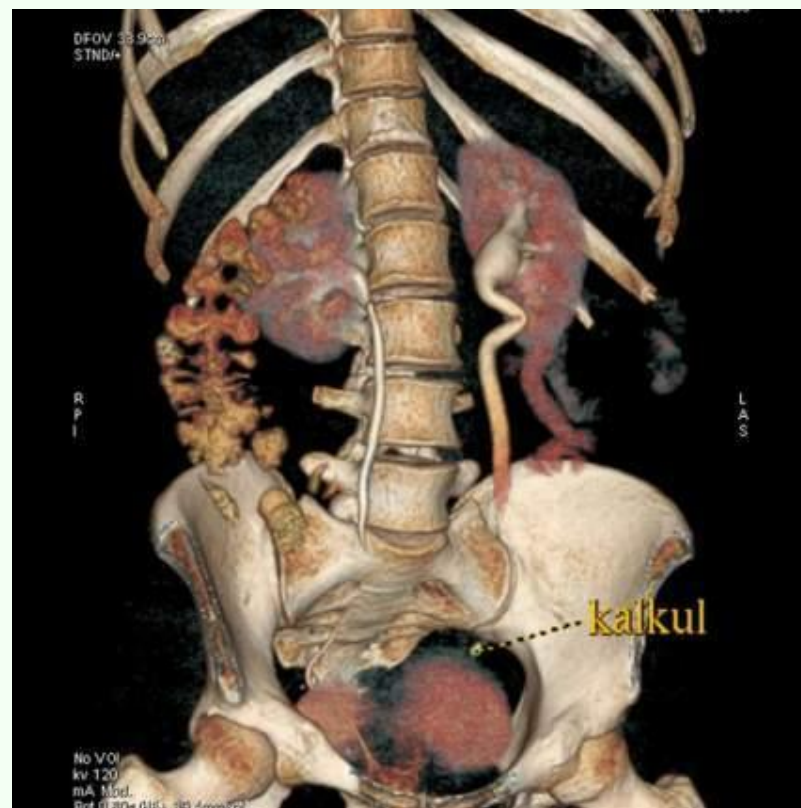
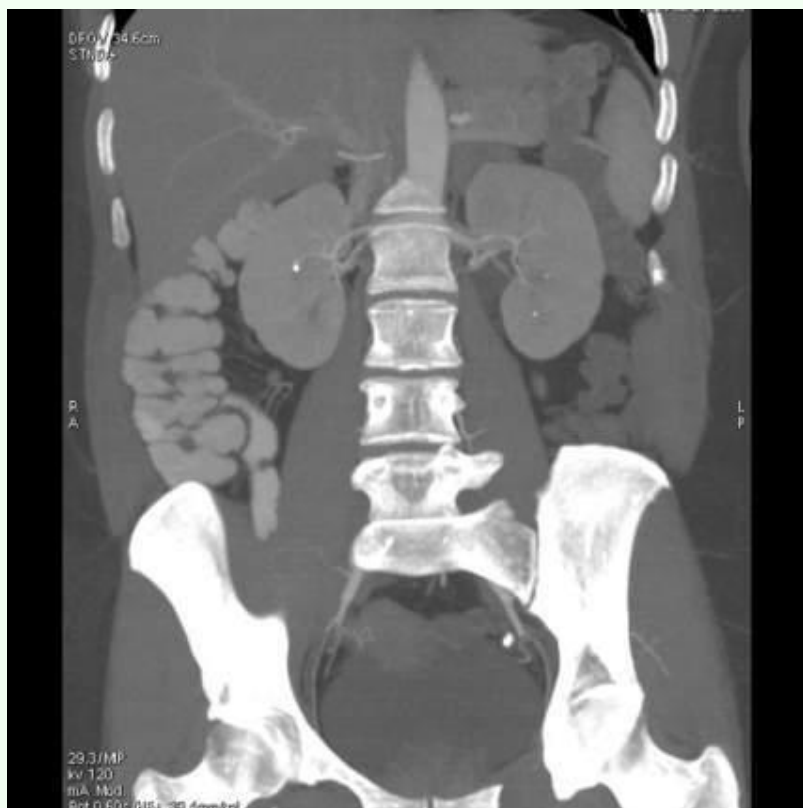


Invaginatio ileo-coecalis

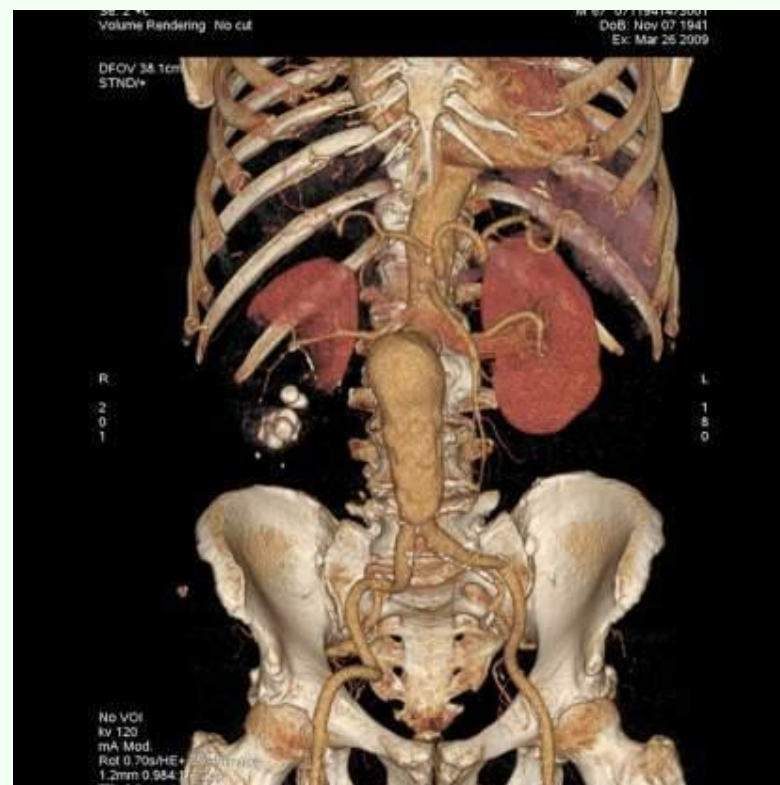




Calculus ureteris l.sin. + Hydroureter + Hydronephrosis l.sin.gr.1-2



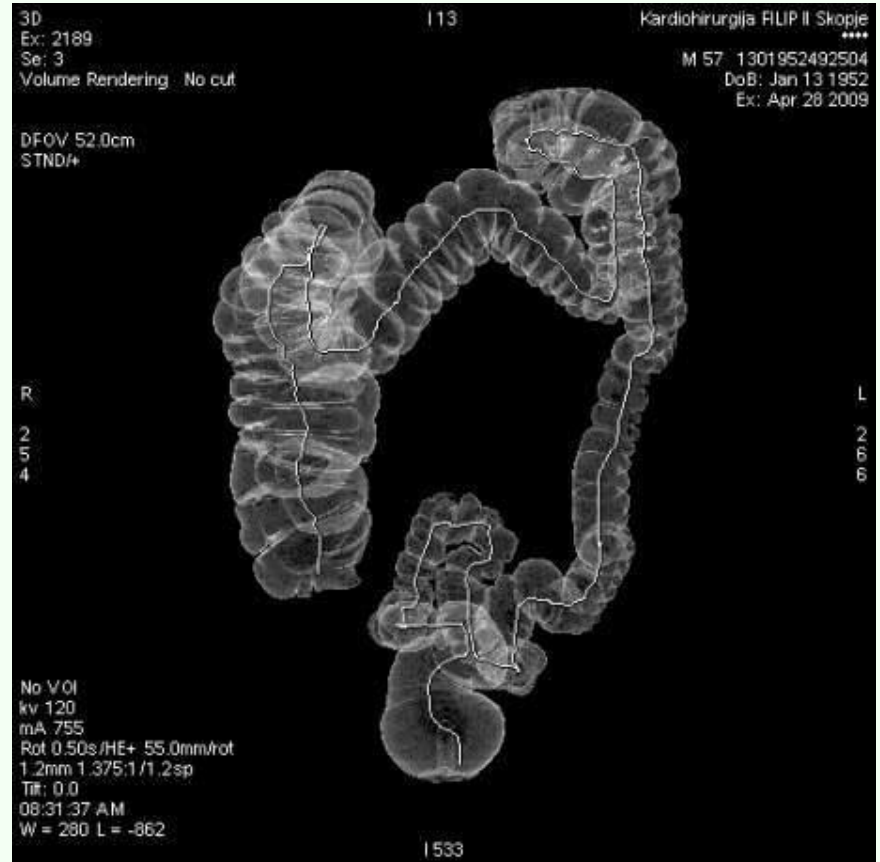
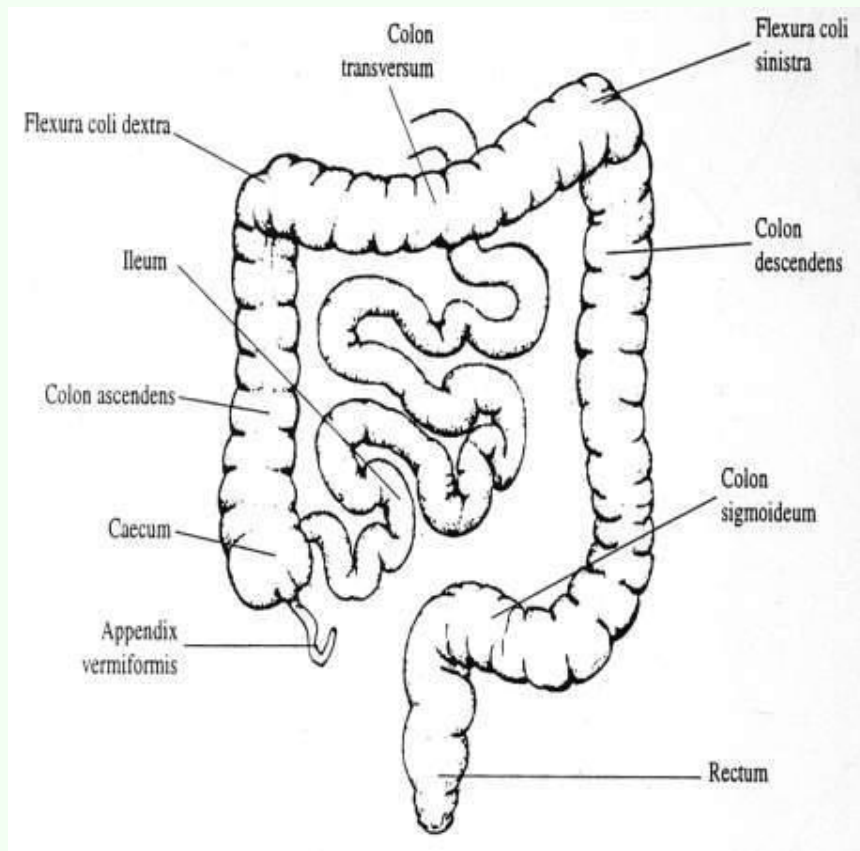
Xantogranulomatous pyelonephritis l.dex.



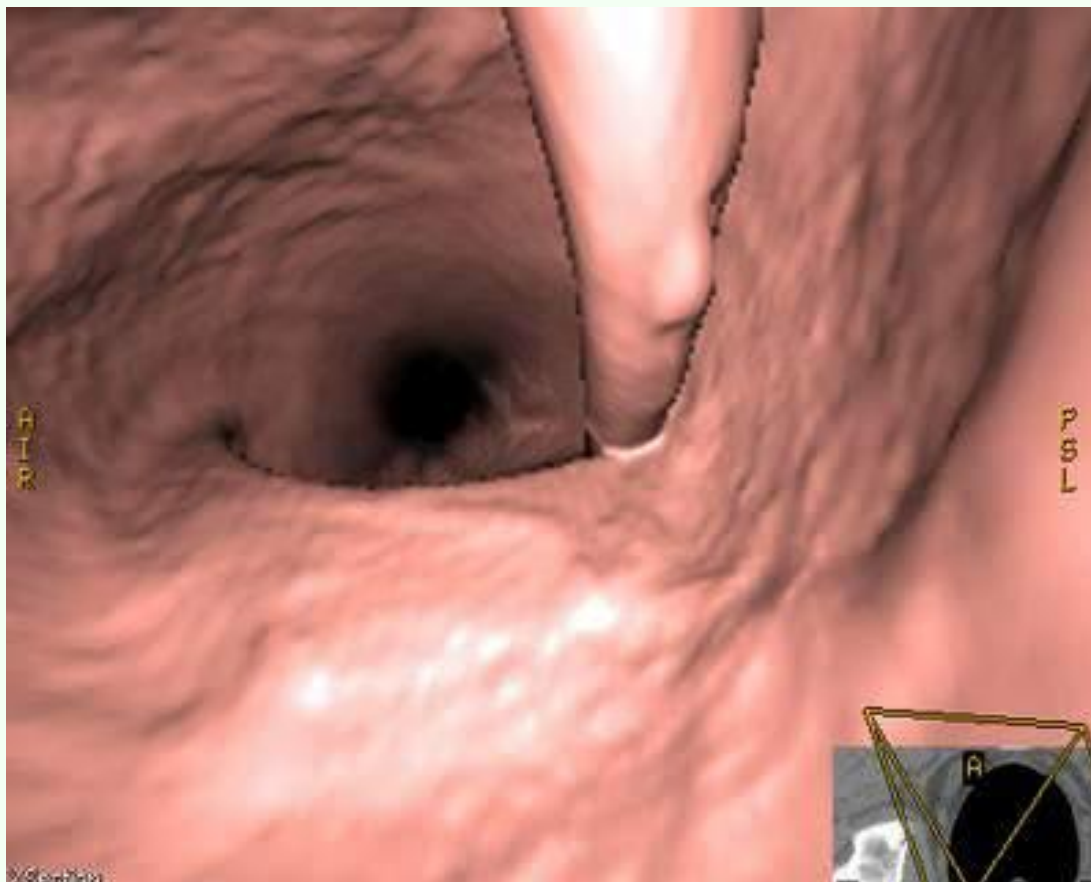
Polypus et diverticulosis v.urinariae



Virtual colonoscopy



Virtual colonoscopy





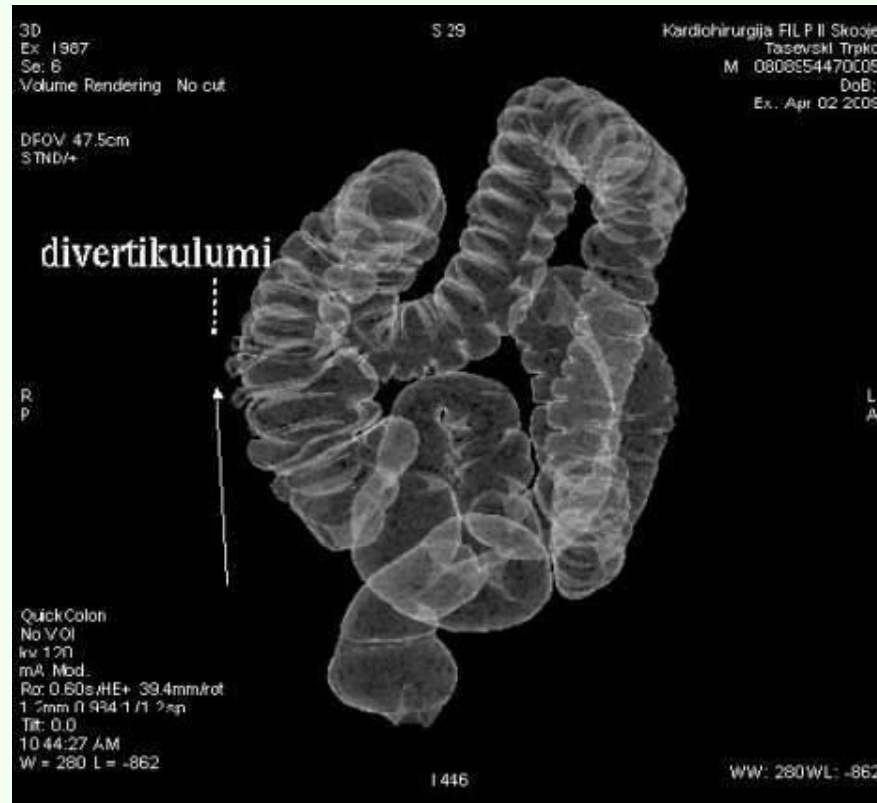
virtual
colonoscopy



fiber optical
colonoscopy



Diverticulosis colonis



Virtual colonoscopy

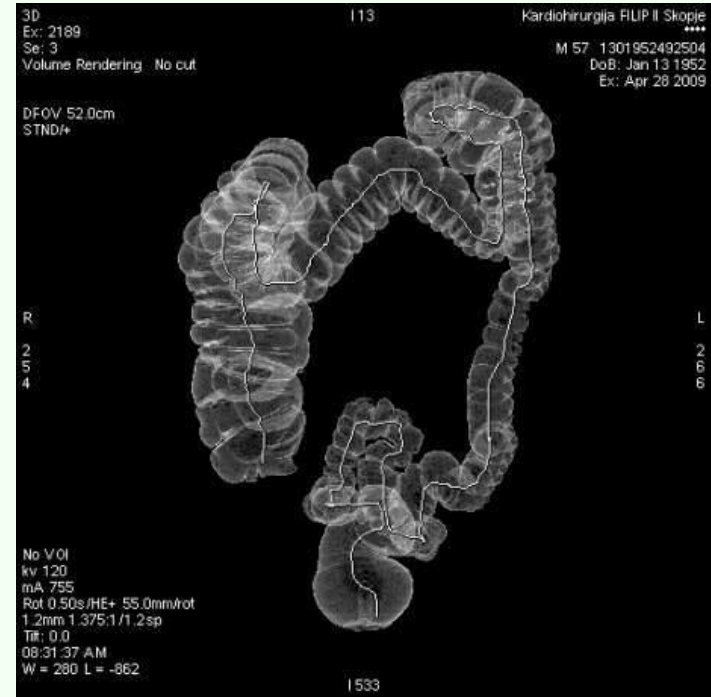
Conclusion

(+)

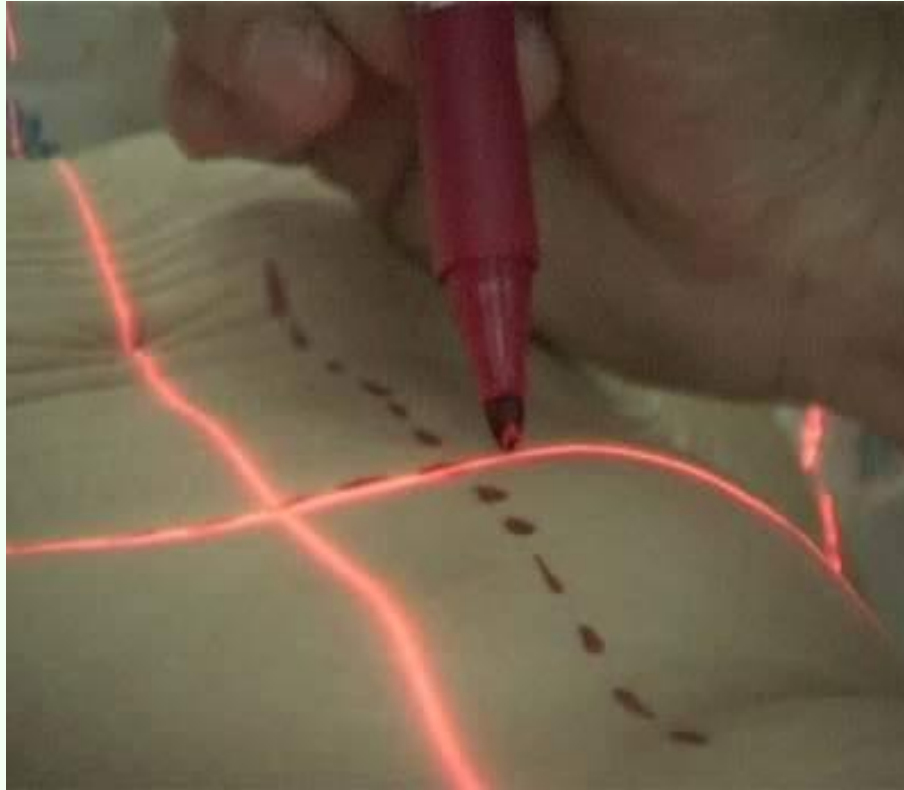
- fast, non-invasive, comfortable
- big diagnostic value
- < risk of perforation
- reduction of invasive fiber optical colonoscopy

(-)

- impossible biopsy
- > radiation dose
- impossible in pts with anal incontinence
- time consuming process



CT guided biopsy



Hypernephroma renis dex.

